CLAIMS

WHAT IS CLAIMED IS:

1. A reinforced structural assembly adapted for placement in a cavity of an automotive vehicle, comprising:

(a) a first member having a first surface generally opposing a second surface;

(b) a second member having a first surface generally opposing a second surface; and

(c) a reinforcement material intermediate the first member and the second member, the reinforcement material configured for contacting the first surfaces of the first and second members during expansion of the reinforcement material thereby promoting connection of the second surfaces of the first and second members with a first and second surface that at least partially define the cavity.

(d) an adhesive material configured to assist the second surfaces of the first and second members in adhering to the first and second surfaces that at least partially define the cavity.

2. The assembly as claimed in claim 1, wherein the first surface that at least partially defines the cavity is part of a battery support tray.

3. The assembly as claimed in claim 2, wherein the second surface that at least partially defines said cavity is part of a metal panel of the vehicle.

4. The assembly as claimed in claim 1, wherein the first and second surface that at least partially define the cavity are both part of a single component.

5. The assembly as claimed in claim 1, wherein the first and second member are generally wedge shaped.

6. The assembly as claimed in claim 1, wherein the first member includes a protrusion extending away from th first surface of the first member.

7. The assembly as claimed in claim 6, wherein the second member includes an cavity at least partially defined in the first surface of the second member, the cavity configured for receiving the protrusion while said reinforcement material is in its pre-expanded state and the cavity of the second member having therein at least a portion of the reinforcement material.

8. The assembly as claimed in claim 1, wherein at least one of the first and second members includes a fastener for assisting in maintaining the assembly in the cavity of the vehicle prior to expansion of said reinforcement material.

9. The assembly as claimed in claim 1, wherein the reinforcement material is configured to experience greater expansion that the adhesive material.

10. A reinforced battery support tray system of an automotive vehicle, comprising:

(a) a battery support tray for assisting in positioning a battery of an automotive vehicle, the battery tray having a surface;

(b) a metal panel of the automotive vehicle, the metal panel having a surface; and

(c) a reinforced structural assembly including;

i) a first member for connecting to the surface of the battery tray;

ii) a second member for connecting to the surface of the metal panel; and

iii) a reinforcement material intermediate the first and second member for expanding to promote

connection of the first member with the battery tray and the second member with the panel;

iv) adhesive material disposed upon said first member and said second material to promote connection of the first member with the battery tray and the second member with the panel.

11. The system as claimed in claim 10, wherein the first and second members are generally wedge shaped in cross-section.

12. The system as claimed in claim 10, wherein the first member includes a protrusion extending away from the first surface of the first member.

13. The system as claimed in claim 12, wherein the second member includes a cavity at least partially defined in the first surface of the second member, the cavity of the second member configured for receiving the protrusion while said reinforcement material is in its pre-expanded state and the cavity of the second member having therein at least a portion of the reinforcement material.

14. The system as claimed in claim 10, wherein at least one of the first and second members includes a fastener for assisting in maintaining the assembly in the cavity prior to expansion of said reinforcement material.

15. The system as claimed in claim 10, wherein the reinforcement material is configured to experience greater expansion that the adhesive material.

16. A method of reinforcing components of an automotive vehicle, comprising:

(a) providing a reinforced structural assembly having a first member, a second member and reinforcement material intermediate the first

and second members and adhesive material on outwardly facing surfaces of the first and second members;

(b) positioning the reinforced structural assembly within a cavity of the automotive vehicle;

(c) expanding the reinforcement material to promote connection between the first member and a first surface that at least partially defines the cavity and to promote contact between the second member and a second surface that at least partially defines the cavity, wherein said adhesive material assists in adhering the first and second members to the first and second surfaces that at least partially define the cavity.

17. The method as claimed in claim 16, wherein the first and second members are generally wedge shaped in cross-section.

18. The method as claimed in claim 16, wherein the first member includes a protrusion extending away from the first surface of the first member.

19. The method as claimed in claim 18, wherein the second member includes a cavity at least partially defined in the first surface of the second member, the cavity of the second member configured for receiving the protrusion while said reinforcement material is in its pre-expanded state and the cavity of the second member having therein at least a portion of the reinforcement material.

20. The method as claimed in claim 16, wherein the reinforcement material is configured to experience greater expansion that the adhesive material.